REMOTE TOWER

Multiple Remote Tower – Bane or Boon?

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WAC, Madrid - 12/03/2019

Founding Members
EUROPEAN UNION EUROCONTROL

DLR

SESAR JOINT UNDERTAKING

Past ‘Multiple’ Research

First DLR Multiple trials (2010)

SESAR P06.09.03 & P06.08.04 (2014)

SESAR2020

PJ05 Remote Tower for Multiple Airports

DLR (AT-One)

WP2 Solution PJ.05-02

Multiple Remote Tower Module

LFV/COOPANS

WP3 Solution PJ.05-03

RTC with Flexible Allocation of Aerodromes to MRTMs

DFS

Validation Phases

today

End of Project Nov 2019

PJ.05-02 Multiple Remote Tower Module (V2)

2x Braunschweig (Germany)
Sturup (Sweden)
Asker (Norway)

PJ.05-02 Multiple Remote Tower Module (V3)

Braunschweig (Germany)
Växjö (Sweden)
Asker (Norway)
Rome (Italy)

PJ.05-03 RTC with Flexible Allocation of Aerodromes to MRTMs (V2)

Braunschweig (Germany)
Sturup (Sweden)
Asker (Norway)
Langen (Germany)

2017 2018 2019

Mid - Run

- ISA – Scale

Post – Run

- NASA-TLX
- SASHA
- AIM
- Safety
- Tailored questions

Debriefing

- open questions to:
  - acceptance and
  - recommendations for improvement

DLR Member of AT-One

MEMBER OF SESAR JOINT UNDERTAKING

FREQUENTIS FOR A SAFER WORLD

HungaroControl

LEONARDO

ON ORO NAVIGABILE

Safety Assessment

Can the situation be solved without major impairment?

YES →

No impairment Good	ATCO workload is low to easily achieve the desired performance.	1
No impairment Good	ATCO workload is adequate to achieve the desired performance.	2
Minor impairment Fair	ATCO requires a minor increased workload to achieve the desired performance.	3

NO ↓

Can the situation be solved by measures reducing capacity?

YES → ATC influences capacity

Impairment of efficiency

Minor Unpleasant delays	ATCO responds with delay to pilot's requests.	4
Moderate Disturbing delays	Situation leads to moderate delays in the traffic management.	5
High Very disturbing delays	Situation leads to strongly delays in the traffic management.	6

NO ↓

Can the situation be solved by measures reducing safety?

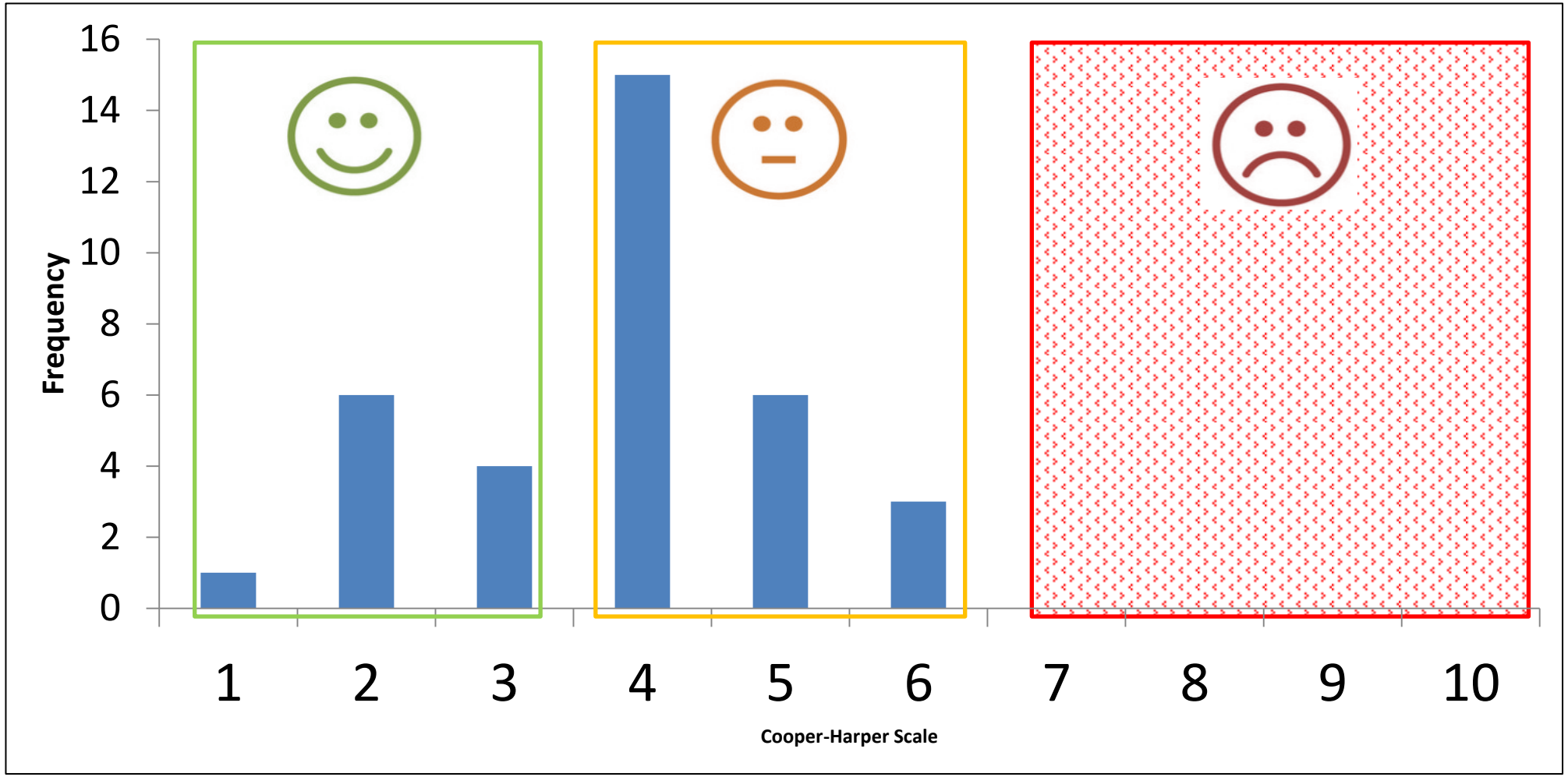
YES → ATCO workload is too high and should be reduced

NO →

Impairment of safety

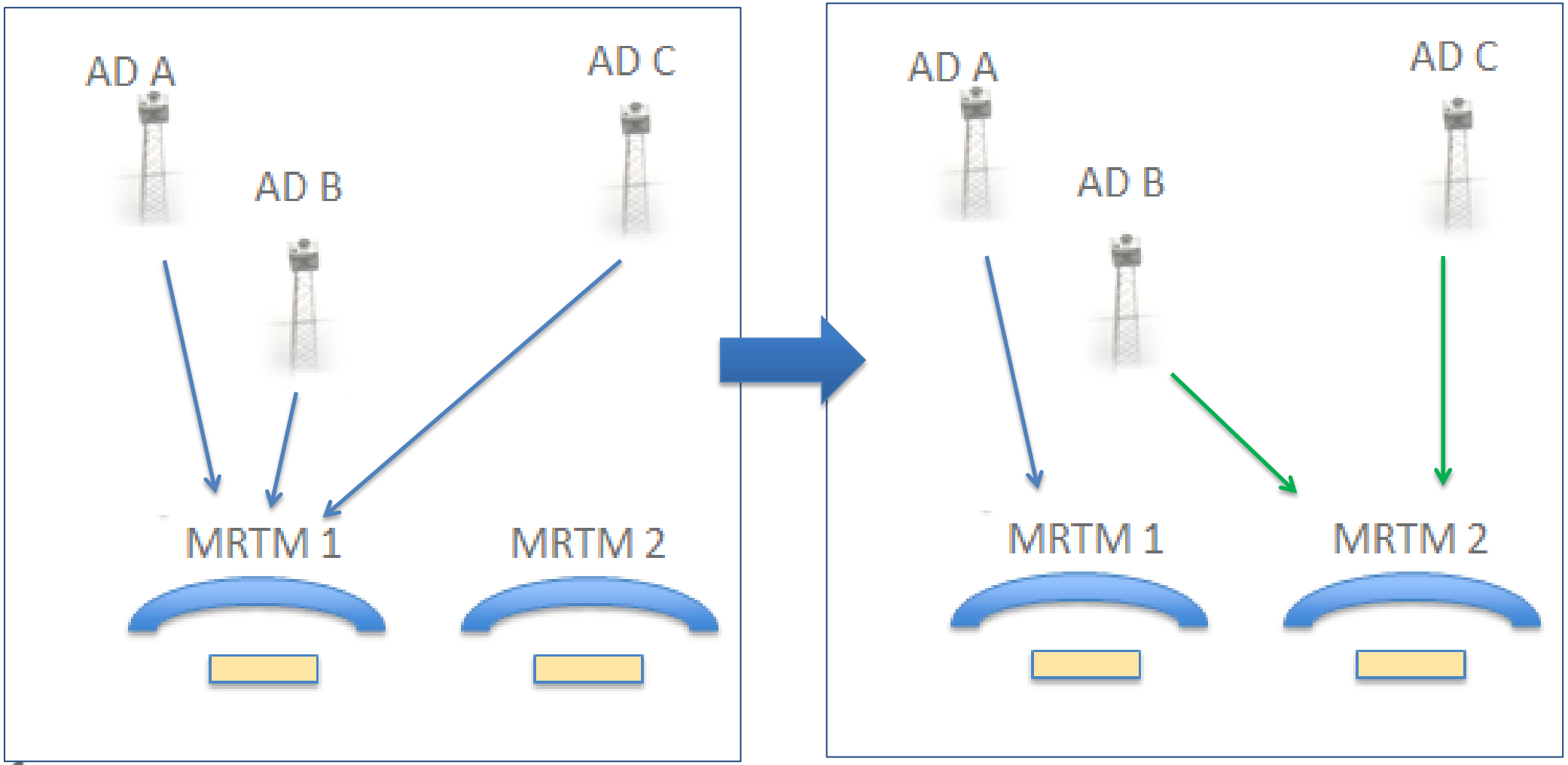
Impairments in prediction of traffic development	ATCO directs traffic sporadically, abruptly and does no longer plans ahead.	7
Impairments due to information processing	ATCO cannot build a complete picture of the traffic situation, confuses information and corrects himself/herself often.	8
Impairments due to information gathering	ATCO must neglect areas/information while monitoring and therefore misses aircraft.	9
Major Impairment	ATCO cannot longer control the traffic situation.	10

Safety Results



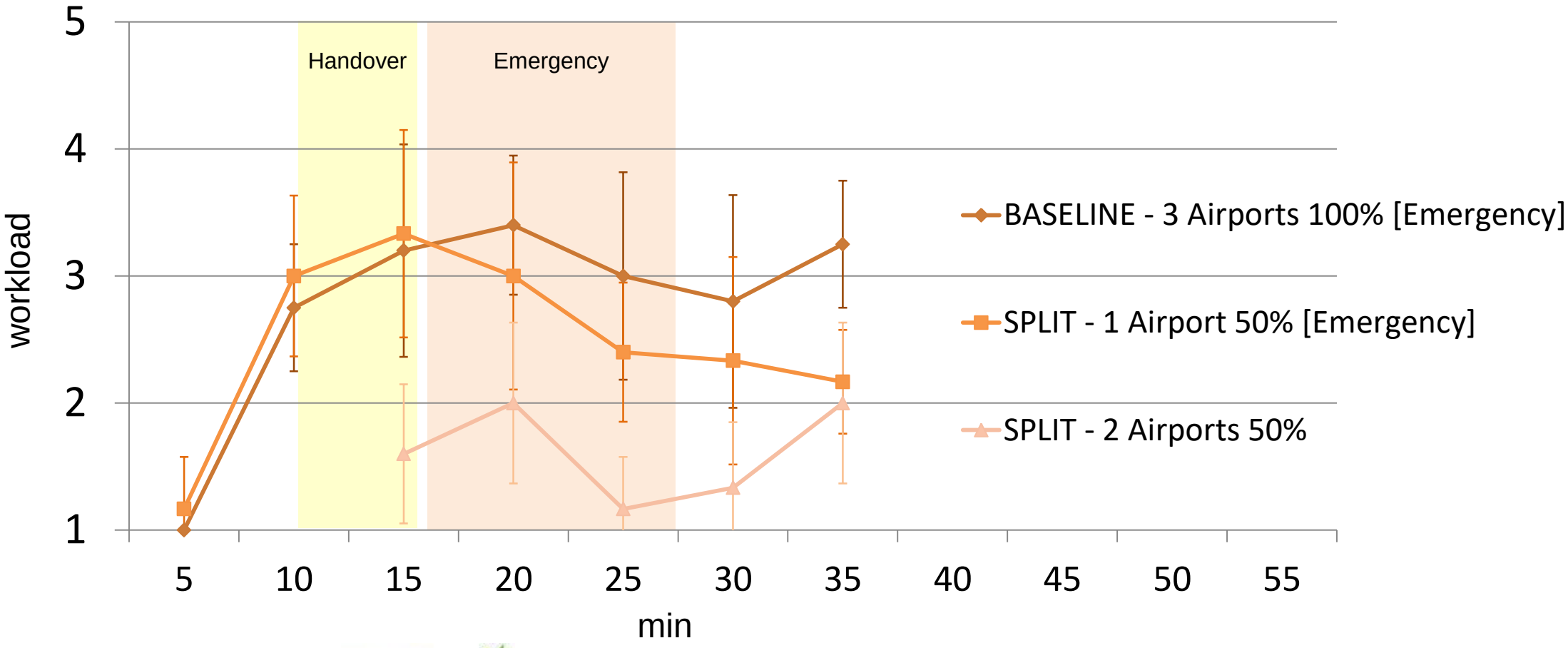
N = 35
M = 3.80
SD = 1.24

Splitting & Merging




DLR

I.S.A. Workload over the time



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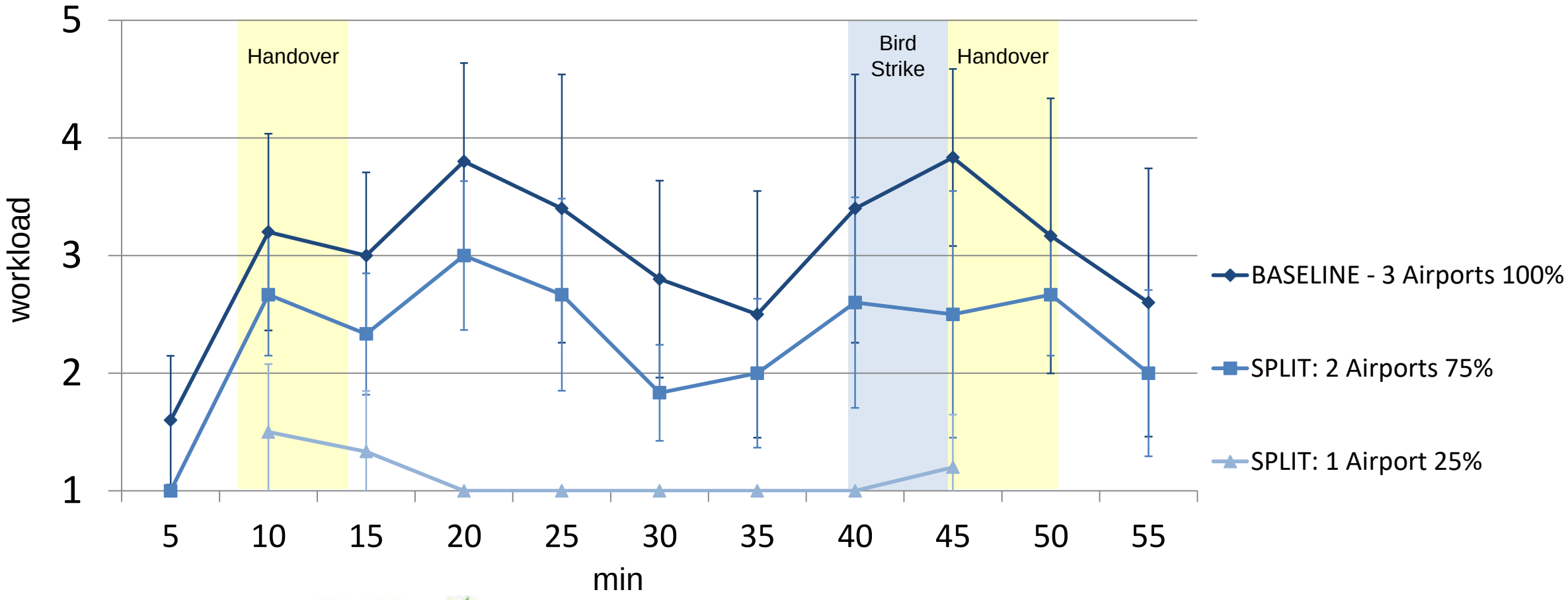

Myths to Multiple Remote Tower

- An ACTO is not able to work multiple
- *Multiple* needs new procedures
- *Multiple* only works with additional ground surveillance
- ATCOs do not like working *multiple*

REMOTE TOWER

www.remote-tower.eu

Home

The modernisation of air traffic management is one of the main challenges of current aeronautics research.The Single European Sky ATM Research (SESAR) project defines, develops and deploys what is needed to increase ATM performance and build Europe's intelligent air transport system. The current programme is SESAR 2020, running from 2016 to 2024 with a budget of 1.6 billion Euro, supports projects to deliver solutions in four key areas, namely airport operations, network operations, air traffic services and technology enablers.

Part of SESAR 2020 is the Project **PJ05 "Remote Tower for Multiple Airports"** with focus on the safe and efficient airport of the future. By bringing the concept of remotely controlling multiple airports to a higher maturity level, the SESAR project aims at providing small and medium sized airports with more


Be prepared for
the future !

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SUPPORTED BY SESAR JOINT UNDERTAKING

This project has received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreement No 699238